



PUNE DISTRICT EDUCATION ASSOCIATION'S

MAMASAHEB MOHOL COLLEGE

48/1A, Erandwane, Paud Road, Pune - 411038(Maharashtra) India

DEPARTMENT OF COMPUTER SCIENCE

M.Sc. – II (Computer Science)

Name: Dipali Yogesh Jadhav

Course Name: Software metrics and project management

Class : Msc-II (Comp.Sci.)

Course code: CS-301

Course outcomes:

CO 1. To formally introduce leadership and management skills and techniques to enable the student .

CO2. To overcome challenges associated with software projects.

CO 3. To successfully lead such projects and programs in today's complex systems environment

CO4. To apply schedule and cost techniques.

CO 5. Produce specific sections of the plan used to manage the software development and maintenance efforts.

Course MSC-II(Comp.Sci.)	Course Specific Outcome CSO	Methodology	Reference Book	No. of Lectures
What is a Project? What is Project management? Project phases and project life cycle, Project Management Components. Project Integration Management-Project plan development and execution, change controls	How to manage project. learn project life cycle. understand qualities of project manager. understand project management components. learn how to develop project plan and apply changes control accordingly.	Constructive	Information Technology Project Management	4
Scope Management -Strategic planning , scope planning, definition ,verification and control.	understand strategic planning of project. apply scope verification and control on project.	Lecture	Information Technology Project Management	6



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Time management- Activity planning, schedule development and control	learn time management on project . apply schedule development and control on project.	Constructive	Information Technology Project Management	4
Cost Management- Cost estimation and Control.	learn how to apply Cost estimation and Control .	Lecture	Information Technology Project Management	2
Quality Management- Quality planning and assurance.	understand Quality planning learn how to give assurance of project management	Use Of ICT	Information Technology Project Management	2
Human Resource Management- Organizational planning, staff acquisition.	understand Organizational planning of project. learn staff acquisition of project.	Constructive	Information Technology Project Management	2
Communication Management- Information distribution , reporting	distribute information and give reporting about project.	Lecture	Information Technology Project Management	2
Risk Management- Risk identification, Quantification and control	identify Risk related to project. understand how to control that risk.	Constructive	Information Technology Project Management	2
Procurement Management- Solicitation, contract administration.	understand what is or what is not included in project and contract administration	Use of ICT	Information Technology Project Management	2



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Software Metrics- The scope of software metrics, software metrics data collection, analyzing software data, measuring size, structure, external attributes.	understand scope of software metrics. understand how to analyze software data.	Lecture	Software Metrics	6
Software Reliability- Measurement and prediction, resource measurement, productivity, teams and tools.	understand how to improve productivity of software. understand Tools and techniques of software.	Constructive	Information Technology Project Management	6
Planning a measurement program. What is metrics plan?: Developing goals, questions and metrics. Where and When:	understand Metrics plan and measurement tools.	Lecture	Information Technology Project Management	4
Quality Standards – CMM, PSP/TSP	understand CMM, PSP/TSP models	Constructive	Information Technology Project Management	4

References:

1.Information Technology Project Management, 6th Edition Kathy Schwalbe ISBN-13:

9781111221751 , Cenage Learning

2. Software Metrics: A rigorous and Practical Approach by Norman E. Fenton and Shari Lawrence Pfleeger, International Thomson Computer Press

Dipali Yogesh jadhav
M.Sc(Comp.Sci.)
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DEPARTMENT OF COMPUTER SCIENCE

Name of Teacher:- Prof. D.D Pokhalekar

Course Name – Mobile Communication

Class:- M.Sc(CS)

Course Code - 302

Course Outcomes:-

CO1) Concepts of multiplexing and modulation.

CO2) Web browsers

CO3) Understand the issues relating to Wireless applications

CO4) Technology of mobile communication

CO5) Understand GSM architecture.

Course	Course Specific Outcome	Methodology	References	No. of lectures
Introduction to Mobile Computing:	Introduction and need for Mobile computing, Mobility and portability, Mobile and Wireless devices, Applications	Constructive	Mobile Communications Jochen Schiller, Pearson Education, 2nd Edition,	2
Wireless Transmission:	General Concepts of multiplexing and modulation, Spread Spectrum, Cellular Systems	Use of ICT tools	Mobile Communications Jochen Schiller, Pearson Education, 2nd Edition,	3
Medium Access Control Layer:	Why specialized MAC?, hidden and exposed terminals, near and far terminals, General Concepts and comparison of SDMA, FDMA, TDMA , CDMA	Constructive	Mobile Communications Jochen Schiller, Pearson Education, 2nd Edition,	4
Mobile IP	Goals, assumptions and requirements, Entities and terminologies, Agent Discovery, Tunneling and encapsulation, IPv6 Mobile Routing	Constructive	Mobile Communications Jochen Schiller, Pearson Education, 2nd Edition,	8
Mobile TCP:	Congestion Control, Slow start, Fast retransmit / Fast recovery, Implications on mobility, Indirect TCP, Snooping TCP, Mobile TCP, Fast retransmit / Fast recovery, Transmission / Timeout freezing, Selective Retransmission,	Constructive	Mobile Communications Jochen Schiller, Pearson Education, 2nd Edition,	5



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Course	Course Specific Outcome	Methodology	References	No. of lectures
GSM:	Mobile Services, System Architecture, Protocols, Localization and calling, Handover, Value Added Services, GPRS	Constructive	Mobile Communications Jochen Schiller, Pearson Education, 2nd Edition,	8
3G mobile networks:	UMTS: System architecture, radio interface, UTRAN: Architecture, Functions of RNC, Core network, Handover Hard and soft handover	Constructive	Mobile Communications Jochen Schiller, Pearson Education, 2nd Edition,	8
Wireless Application Protocol:	Architecture, Wireless datagram protocol, Wireless transport layer security, Wireless transaction protocol, WAP Push Architecture, protocols, Wireless application environment	Constructive	Mobile Communications Jochen Schiller, Pearson Education, 2nd Edition,	4
Introduction to Android Operating System& Programming:	Overview and evolution of Android, Features of Android, Android architecture, Components of an Android Application, Manifest file, Android Activity and Service Lifecycle, UI Designing (layout designig)			10

- Reference Books
1. Mobile Communications Jochen Schiller, Pearson Education, 2nd Edition, ISBN : 9780321123817
 2. Beginning Android Application Development by Wei-Meng Lee Wiley India ISBN:9788126531066
 3. Mobile Networks GSM and HSCSD- Nishit Narang, Sumit Kasera, TataMcGrawHill
 4. Mobile Computing: Technology, Applications, and Service Creation by Asoke K. Talukder,
 5. Beginning Android 3 by Mark Murphy APress , ISBN 9788132203568
 6. The Android Developers Guide [<http://developer.android.com/guide/index.html>]



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DEPARTMENT OF COMPUTER SCIENCE

Name of the Teacher : Sulekha Magar

Class : Msc-Sem –III(Soft Computing) Pattern : 2013 (Semester - III)

Course Outcomes : Cos : Soft Computing

Course Code : 303

CO1 : 1.Students will understand the concepts of how an intelligent system work.

CO2 : 2.Understanding the Development process using Neural Network

CO3 : 3.Students will be able to implement Fuzzy Logic and Genetic Algorithms, which are the major building blocks of Intelligent Systems.

Course : CS-303 MSC-II(Sem-3)	Course Specific Outcome(CSO)	Methodology	Reference Books	No of Lectures
Classical Sets and Fuzzy Sets and Fuzzy Relations	1.1. At the end of this chapter students are going to know about Classical Set Theory using the concepts Fuzzy Logic and Relations.	Lecture	AN INTRODUCTION TO FUZZY LOGIC AND FUZZY SETS by Buckley James J., Springer	5
Membership Functions	2.1.Students are going to understand some concepts like Fuzzification/Defuzzification and apply to the real world.	Lecture	AN INTRODUCTION TO FUZZY LOGIC AND FUZZY SETS by Buckley James J., Springer	4
Fuzzy to Crisp Conversions	3.1.Understand different methods Alpha cuts, fuzzy relations, extension principles, fuzzy arithmetic and defuzzification methods	Constructive	AN INTRODUCTION TO FUZZY LOGIC AND FUZZY SETS by Buckley James J., Springer	3
Classical Logic and Fuzzy Logic.	4.1.Students will learn about the syntax and relation between sentences It also includes the introduction of operation like disjunction, Conjunction.	Lecture	Fuzzy Logic: With Engineering Applications by Timothy J Ross, Wiley India	4



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Fuzzy Rule Based System	5.1.Students are going to use the fuzzy sets as a calculus. It also continues with the use of natural language as fuzzy systems	Constructive	Fuzzy Logic: With Engineering Applications by Timothy J Ross, Wiley India	3
Application of Fuzzy Logic	6.1. Application of Fuzzy logic in Home Appliances Fuzzy Logic Controllers Weather Forecasting	Lecture	Fuzzy Logic: With Engineering Applications by Timothy J Ross, Wiley India	3
Introduction to Neural Networks	7.1.Students are going to learn about the Neuroscience, Hybrid Intelligence Systems, Biological Neurons	Constructive	Neural Networks: An Introduction by Berndt Muller, B. Muller, Springer	4
Artificial Neurons, Neural Networks and Architectures	8.1.At the end students will get the Indepth Knowledge about the artificial Neuron, its components, activation signal function It also introduces Artificail Neural Network(ANN)	Lecture	Neural Networks: An Introduction by Berndt Muller, B. Muller, Springer	4
Perceptron's and LMS	9.1.Briefs about the human learning process and compare with neural network learning process	Constructive	Neural Networks: An Introduction by Berndt Muller, B. Muller, Springer	8
Applications of Neural Networks	10.1.Students are able to apply the Neural Network in different fields, Pattern Recognition, Different Genetic Algorithms (GA)	Lecture	Neural Networks: An Introduction by Berndt Muller, B. Muller, Springer	3



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Genetic Algorithms (GA)	11.1.Introduction to GA. Robustness of Traditional Optimization And searching Methods 11.2. At the end students will able to apply the Genetic Algorithms (GA)		3. Genetic Algorithms in search, Optimization & Machine Learning by David E. Goldberg, Pearson Education.	4
Applications of Genetic Algorithm	12.1. Students will be able to apply the Genetic Algorithms (GA) in the real world		Genetic Algorithms in search, Optimization & Machine Learning by David E. Goldberg, Pearson Education	4

Types of Evaluation: Diagnostic evaluation Test to identify Slow Learner and Fast Learner.

Formative and Summative Evaluation

- 1) Formative Evaluation : Knowledge, Understanding, Application, Skills
- 2) Summative Evaluation: Term End Examination and University Examination.

Development of E-content/E-Module and made available on Google and Website

References :

1. Principles Of Soft Computing (With CD)by S. N. Sivanandam,S. N. Deepa, Wiley,India
2. Fuzzy Logic: With Engineering Applications by Timothy J Ross, Wiley India.
3. Genetic Algorithms in search, Optimization & Machine Learning by David E. Goldberg, Pearson Education
4. Neural Networks: An Introduction by Berndt Muller, B. Muller, Springer.
5. AN INTRODUCTION TO FUZZY LOGIC AND FUZZY SETS by Buckley James J., Springer



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DEPARTMENT OF COMPUTER SCIENCE

Course: Principles of programming and algorithms

Name of the teacher: Prof.Harshada Bobade

Course Outcome: COs: Business Intelligence (Elective)

Course Code - CS 308

CO1) To apply principles and skills of economics, marketing, and decision making to contexts and environments in data science. ...

CO2) To learn the BI in terms of BI applications.

CourseM.S.c (CS)(Sem-III) CS-308	Course Specific Outcome CSO	Methodology	Reference book	No. of Lectures
Introduction to Business intelligence Definition and History of BI, Transaction processing versus analytical processing BI implementation , Major tools and techniques of BI	To describe major issues in implementing Business Intelligence. To describe the BI methodology & concepts and relate them to Decision Support System (DSS). To understand today's business environment & describe How Organizations survive	Lecture	Books 1	06
Data warehousing Definition and concepts, , Data warehouse architecture, ETL process, data warehouse development, Top down vs. Bottom up, Data Mart vs. EDW, Implementation issues, Real-time data warehousing	To explain Data warehousing operations. To explain Role of Data warehouses in Decision Support To describe the processes used in developing & managing data warehouses	Constructive	Books 1,2	10



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Business performance management Key performance indicators and operational metrics, Balanced scorecard , Six Sigma , Dashboards and scorecards	To describe some of the Best Practices in planning and Management Reporting. To understand some of the basis of Dashboard Design. To describe basic elements of Balanced Score Card & Six Sigma Methodology	Lecture	Books 1,2	14
Data Mining for Business Intelligence Failure Data mining process, Data mining methods, ANN for Data Mining	To define Data Mining as a Enabling Technology for BI To learn the Standardized Data Mining Processes To build awareness of Existing data Mining tools.	Lecture	Books 2	10
Text, and Web mining for Business intelligence Text mining Applications, Process and Tools, Web content, structure and usage mining	To describe Text Mining & understand the need for Text Mining. To know the Process of carrying of Text Mining Project. To Understand Web Content Mining, Web Structure Mining & Web Log Mining	Lecture	Books 1,2	08



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BI implementation ,Integration and emerging trends Implementing BI, BI Application Life Cycle , Connecting BI to Enterprise systems, On-demand BI, Issues of legality, privacy and Ethics, Emerging topics in BI, Social Networking and BI, RFID and BI	Describe the major Business Intelligence Implementation issues. To Understand the needs for connecting BI system with other Information Systems & describe how it is done To Describe How VirtualWorld technologies can change the use of BI applications.	Lecture	Book 1	10
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Reference Books

1. Business Intelligence: A Managerial Approach, 2nd Edition, PEARSON 2012 Authors: EfraimTurban, Ramesh Sharda, Dursun Delen, and David King ISBN-10: 0-13-610066-X ISBN-13: 978-0-13-610066-9
2. Oracle Business Intelligence Applications, McGraw Hill Education 2013 Authors : Simon Miller, William Hutchinson ISBN-10: 93-5134-153-4 ISBN-13: 978-93-5134-153-6

Prof. Harshada Bobade



Name: Prof. Pandit Supriya P.

Course Name: Software Quality Assurance (SQA)

Class : Msc-II (Comp.Sci.)

Course code: CS- 404

Course Outcome (CO):

- 1) CO1: Develop methods and procedures for software development that can scale up for large systems and that can be used to consistently produce high-quality software at low cost and with a small cycle time.
- 2) CO2: Student learns systematic approach to the development, operation, maintenance, and retirement of software.
- 3) CO3: Student learns how to use available resources to develop software, reduce cost of software and how to maintain quality of software.
- 4) CO4: Methods and tools of testing and maintenance of software's.
- 5) CO5: Propose and defend innovative solutions to software quality assurance and measurement problems in the context of various software development environments.

Course MSC-II(Comp.Sci.)	Course Specific Outcome CSO	Methodology	Reference Book	No. of Lectures
Software Quality • Definition • Software errors, software faults and software failures • Software quality assurance – definition and objectives • Software quality assurance vs. software quality control • The objectives of SQA activities	CSO1: Student learns Software errors, software faults and software failures. CSO2: Understand Software quality assurance – definitions, objectives and SQA activities	Constructive	Software Quality Assurance from theory to implementation – Danial Galin	4
Pre-project SQA Components • Contract Review • Development and Quality Plan	CSO1: Get the knowledge of development and Quality Plan.	Lecture	Software Quality Assurance from theory to implementation – Danial Galin	6
SQA components in Project life cycle activities assessment • Verification and Validation • Various types of Reviews • Inspections • Walkthrough • Software testing • Impact of	CSO1: Understand the difference between Verification and Validation. CSO2: Know the concepts of review, Inspection and Walkthrough.	Constructive	Software Project management - Edwin Bennatan Software Quality Assurance : Principles and	10



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CASE Tool			Practices Nina Godbole,	
SQA Infrastructure Components • Procedures and procedure manuals • Templates and Checklists • Staff training • Corrective and preventive actions • Documentation control	CSO1: Understands Procedures and procedure manuals, Templates and Checklists. CSO2: Implements the Corrective and preventive actions and makes the Documentation control.	Lecture	Total Quality Management, Prentice Hall, 2003. Dale H. Besterfield	08
Software Quality Factors • McCall's Quality Model • Product, Process quality metrics	CSO1: Student should know the McCall's Quality Model and Product, Process quality metrics.	Use Of ICT	Total Quality Management, Prentice Hall, 2003. Dale H. Besterfield	05
Standardization • ISO 9001 and ISO 9000-3 • SEI-CMM, • IEEE 1012 standard • ISO/IEC 12207 standard.	CSO1: Understand the models ISO 9001 and ISO 9000-3, SEI-CMM, IEEE 1012 standard and ISO/IEC 12207 standard	Constructive	Software Quality Assurance from theory to implementation – Danial Galin	04
Configuration Management • Change control • Release and version control • Software configuration management audit	CSO1: Get the knowledge of Change control, Release and version control. CSO2: Understand and implements the Software configuration management audit.	Lecture	Project Management Body of Knowledge – PMI	04
Quality Improvement Technique • Pareto Diagrams • Cause-Effect Diagrams • Scatter Diagrams • Run Charts	CSO1: student should able to draw the diagrams like Pareto Diagrams, Cause-Effect Diagrams, Scatter Diagrams and Run Charts.	Constructive	Software Quality Assurance : Principles and Practices Nina Godbole,	04
Quality Costs • Quality Cost Measurement • Utilizing Quality Costs for Decision-Making	CSO1: Understand and implements Quality Cost Measurement and Utilizing Quality Costs for Decision-Making.	Use of ICT	Software Quality Assurance : Principles and Practices Nina Godbole,	05

Reference books

1. Software Quality Assurance from theory to implementation – Danial Galin



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2. Software Project management - Edwin Bennatan
3. Software Engineering Roger S. Pressman, TMH, 7Th Ed.
4. Software Quality Assurance : Principles and Practices Nina Godbole,
5. Project Management Body of Knowledge – PMI
6. www.softwarecertifications.org
7. Quality, 5th ed., Prentice-Hall, 2010. Donna C. S. Summers
8. Total Quality Management, Prentice Hall, 2003. Dale H. Besterfield

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